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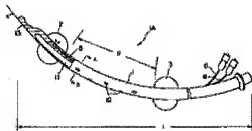
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(54) CATHETER TO BE INSERTED INTO GULLET

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a catheter to be inserted into the gullet, which can be easily and securely inserted into the gullet with simple and speedy handling.

SOLUTION: A balloon 2 for closing the gullet is formed at the front of this tubular catheter main body 1 which is slightly curved toward one side, and a balloon 3 for closing the upper larynx at the rear with a prescribed interval from the balloon 2. A side hole 10 for ventilation which communicates with the lumen 11 of the catheter is formed between the balloons 2 and 3 in the catheter main body 1, and the lumen 11 of the catheter main body 1 is a single-lumen structure. A guide part 13 is formed at the top of the catheter main body 1 outside the curved part. A part of the guide part 13 outside the curved part is crushed flat and closed, and the outer diameter of the guide part is smaller than that of the catheter main body 1, and the total shape of the guide part is rounded.



DETAILED DESCRIPTION

0002]

[Description of the Prior Art] Although a means for there to have been no spontaneous respiration, or to have inserted a tube into a respiratory tract to a weak patient, and to send a fresh air (oxygen) into a lung was used, only the medical practitioner was allowed this act and it was not able to carry out at the generating spots, such as an accident. The emergency medical technician system was recently inaugurated, in an old fireman, the health care intervention which was able to do only first aid can perform [a paramedic] now to some extent on the spot, and maintenance of a life can be expected now. However, a paramedic is not allowed the act of

inserting a catheter in endotracheal, but he is trying for the air supplied from outside to go to the trachea side by inserting a catheter in reservation of a respiratory tract to an esophagus, and closing an esophagus by a balloon. As an esophagus interpolation necessary catheter inserted in such an esophagus, the what is called double lumen type thing with two lumens was known conventionally.

[0003]

[Problem(s) to be Solved by the Invention]However, the conventional esophagus interpolation necessary catheter was a double lumen type, since the tip of the catheter body was carrying out the opening, even if inserted in either the esophagus or the trachea, while reservation of the respiratory tract was possible, operation became complicated in case of emergency, and it had required time for insertion. Since the tip opening of the catheter is carrying out sharp shape aslant cut like other endotracheal catheters, If an unfamiliar paramedic carries out to insertion, the accident in which will damage an esophagus, a trachea, pars laryngea pharyngis, etc., or it will insert in the trachea instead of an esophagus accidentally has occurred plentifully, and when severe, the esophagus and the trachea would punch and the dying accident will also have occurred.

[0004]Then, the purpose of this invention is as follows.

The above conventional problems can be solved, operation can be easy, and it can insert in an esophagus promptly.

Be easy to insert and, moreover, provide an esophagus interpolation necessary catheter with the positive insertion.

[0005]

[Means for Solving the Problem]In order to attain the aforementioned purpose, this invention forms the balloon 2 for epipharynx closing in the front part of the tube shape catheter body 1 which curved a little to [1] 1 side, Set a prescribed interval from this balloon 2 to a rear part, and the balloon 3 for epipharynx closing is formed, It is open for free passage to the catheter body 1 between these both the balloons 2 and 3 with the lumen 11, and the side hole 10 for ventilation is established in it, The lumen 11 of the catheter body 1 has one single lumen structure, In a curve outside position, at a tip of the catheter body 1, it is crushed flatly, and is blocked, and an outer diameter is smaller than an outer diameter of the catheter body 1, and the esophagus interpolation necessary catheter 1A with which the flare portion 13 in which the whole had a radius of circle is formed is provided.

[2] The flare portion 13 provides the esophagus interpolation necessary catheter 1A of the aforementioned [1] description currently formed in direction which met in the direction of tangent X in a curve outside position.

[3] The flare portion 23 provides the esophagus interpolation necessary catheter 1A of the aforementioned [1] description currently formed in direction which carried out predetermined angle crookedness outside to the direction of tangent X in a curve outside position.

[0006][4] The balloon 32 for esophageal atresia is formed in the front part of the tube shape catheter body 31 which curved a little to 1 side, Set a prescribed interval from this balloon 32 to a rear part, and the balloon 33 for epipharynx closing is formed, It is open for free passage to the catheter body 31 between these both the balloons 32 and 33 with the lumen 41, and the side hole 40 for ventilation is established in it, The stomach-tube tube 39 of a narrow diameter is put side by side to a flank of the catheter body 31 from the catheter body 31 via a septum, The stomach-tube tube 39 protrudes for a long time than the blockade tip part 42 of the catheter body 31, and

the esophagus interpolation necessary catheter 31A with which the opening tip part 43 is formed at a tip of the stomach-tube tube 39 is provided.

[0007]

[Embodiment of the Invention]The schematic diagram (a part is omitted in part front view of a fracture) of the esophagus interpolation necessary catheter 1A in which the 1 embodiment in which this invention of drawing 1 is the optimal is shown, and drawing 2 are expanded sectional views which meet the A-A line of drawing 1. The whole is a tube shape catheter body which consists of flexible silicone rubber etc. 1, the overall length L is about 35 cm, this catheter body 1 presents the shape which curved a little to the up side by drawing 1 at that 1 side, i.e., this embodiment, and the blockaded flare portion 13 is formed at the tip. The balloon 2 for esophageal atresia is formed in the front part of the catheter body 1, and the balloon 3 for epipharynx closing is formed in the position which set the prescribed interval from this balloon 2 to the rear part. The interval D of these both the balloons 2 and 3 is set as 9 cm. 5 is a lumen for balloon 2 expansion, and the branch tubes 6 for the balloon 2 expansion with a one-way valve are opened for free passage and connected to this lumen 5 at the back end side of the catheter body 1. 7 is a lumen for balloon 3 expansion, and similarly, the branch tubes 8 for the balloon 3 expansion with a one-way valve are open for free passage, and it is connected to this lumen 7 at the back end side of the catheter body 1.

[0008]The side hole 10 for ventilation is open for free passage to the catheter body 1 between both the balloons 2 and 3 with the lumen 11 of the catheter body 1, and are established in it. [two or more] In this embodiment, the side hole 10 is established in each side walls and the curve paries lateralis orbitae which carry out for relativity. The side hole 10 of the curve paries lateralis orbitae is formed so that it may become the mid-position of the shaft orientations to the side hole 10 of each side walls. As for this catheter 1A, the lumen 11 has one single lumen structure as mentioned above.

[0009]13 is a flare portion of the catheter body 1, and this flare portion 13 turns to the direction which met in that tangent (X) direction mostly in the curve outside position of the catheter body 1, As shown also in drawing 3, it is flatly crushed like the beak of a duck or a platypus, and an outer diameter is smaller than the outer diameter of the catheter body 1, and the whole is formed in shape with a radius of circle.

[0010]Drawing 5 shows another embodiment, The flare portion 23 of the catheter body 1 of this embodiment is the point currently formed so that it may turn to the direction crooked outside to that tangent (X) direction at the predetermined angle theta (good [to form 25 degrees in about 20 degrees preferably from 15 degrees]) in the curve outside position of the catheter body 1, It is different from the aforementioned flare portion 13. Thus, when it inserts from a tendency by giving the predetermined angle theta, insertion becomes very easy by contacting a pharynx posterior wall of stomach early, and bending in the direction of a mess hall.

[0011]In order to insert the above esophagus interpolation necessary catheters 1A in an esophagus, it changes into the state where the tongue and mandible of the patient who lay by hand were raised, as [show / while / drawing 6], and the catheter 1A which it had by the hand of another side is quickly inserted from the tip side, as it becomes the way person side about the curve outside of the catheter body 1. Without giving a crack to the pharynx, a trachea, etc., since it has shape whose shape of the flare portion 13 of the catheter body 1 (23) is flat like the beak of a duck or a platypus and which is roundish on the occasion of this insertion, it is derived by the flare portion 13 (23) as it is, and can insert in an esophagus smoothly. That is, insertion can be performed blindly. And if inserted to a prescribed position, a syringe will be connected to the

branch tubes 8, air will be sent to the lumen 7, the balloon 3 is blown up, and an epipharynx is closed. A syringe is connected to the branch tubes 6, air is sent to the lumen 5, the balloon 2 is blown up, and an esophagus is closed. Thereby, a catheter will be in the state where it was fixed like a graphic display.

[0012]After an appropriate time, the ventilation bag 25 is connected to the rear end opening of the catheter body 1, and it ventilates by performing compression and expansion by turns by hand like a bellows by sending air to the trachea side through the side hole 10 from the lumen 11 of the catheter body 1. Under the present circumstances, an esophagus is closed by expansion of the balloon 2, air is prevented from leaking in the direction of the stomach or intestines, and an epipharynx is closed by expansion of the balloon 3 and air is prevented from leaking to a mouth or the exterior. Therefore, a patient's respiratory tract is secured certainly.

[0013]It cannot be overemphasized that it is not what the shape and structure of the flare portions 13 and 23 which were shown by the aforementioned embodiment only showed a desirable example, and is limited to the thing of Drawings.

[0014]Drawing 7 is a schematic diagram of the esophagus interpolation necessary catheter 31A of others of this invention, and drawing 8 is a B-B sectional view of drawing 7. The length L1 is preferred 25 cm from 15 cm, and, as for the esophagus interpolation necessary catheter 31A, the stomach-tube tube 39 of the narrow diameter is put side by side to the flank of about 20-cm catheter body 31 from the catheter body 31 via the septum. the stomach-tube tube 39 -- the blockade tip part 42 of the catheter body 31 -- 20 more cm to 30 cm -- desirable -- about 25 cm -- it protrudes for length L 2 minutes. Since the stomach-tube tube 39 is formed for a long time thinly, it can be easily inserted in the inside of stomach promptly, without damaging stomach walls. The opening of the tip of the stomach-tube tube 39 is carried out, and it can discharge gastric juice from this tip opening 43, or can pour in a thing into the stomach. The tip of the catheter body 31 is blockaded and the lumen 41 of the catheter body 31 and the side hole 40 open for free passage are formed in the flank of the front part. In the catheter body 31, from the tip of the stomach-tube tube 39, in about 10-cm position About 8 mm in inside diameter. The balloon 32 for esophageal atresia with a capacity [about 2 cm in length] of about 50 cc is arranged, and the balloon 33 for epipharynx closing about 3 cm in length is arranged from the blockade tip part 42 of the catheter body 31 at about 2-cm position. The lumen 37 for balloon expansion is formed in the flank of the lumen 41 of the catheter body 31 via a septum, and the lumen 35 for balloon expansion is formed in the flank of the lumen 41A of the stomach-tube tube 39 via the septum. The lumen 35 for balloon expansion is open for free passage with the branch tubes 38, and is opening the lumen 37 for balloon expansion for free passage with the branch tubes 36. (It does not become the resistance at the time of inserting like) The section of the catheter 31 has the preferred shape (ellipse form) near a circle, as shown in drawing 8. The cross-section area of the lumen 41 is good to form as greatly as possible so that ventilation resistance may not arise. Since the component of the catheter 31A and directions for use are substantially [as said catheter 1A] the same except inserting the tip of the stomach-tube tube 39 into the stomach, and pouring in a thing into discharge of gastric juice, or the stomach, detailed explanation is omitted.

[0015]

[Function and Effect of the Invention]From Claim 1, since the invention of 3 consists of the above composition, derivation by the flare portion 13 (23) can perform insertion onto the esophagus. Moreover, since it is a single lumen type, operativity becomes possible [securing a patient's respiratory tract in increase and a short time], and is very useful to the initial

maintenance of a patent airway in emergency medical service. And there is an outstanding effect of the various kinds of not damaging an esophagus, a trachea, and the pharynx by the roundish flare portion 13 (23) at the time of insertion. The invention of Claim 4 can be inserted into the stomach, without damaging an esophagus and stomach walls, since the thin and long stomach-tube tube 39 is formed. If the insertion course is possible in a pernasal course, that of an insertion method is the same as that of insertion of the usual stomach tube and are a medical practitioner and an emergency medical technician, it can be inserted. In order that the catheter body 31 may go into neither an organ nor an esophagus unlike a pair tube, it is thought that there is no fatal complication. It is easy to pour in a substance into discharge of gastric juice or the stomach from a stomach-tube tube tip opening.

CLAIMS

[Claim(s)]

[Claim 1]The balloon 2 for esophageal atresia is formed in the front part of the tube shape catheter body 1 which curved a little to 1 side, Set a prescribed interval from this balloon 2 to a rear part, and the balloon 3 for epipharynx closing is formed, It is open for free passage to the catheter body 1 between these both the balloons 2 and 3 with the lumen 11, and the side hole 10 for ventilation is established in it, The lumen 11 of the catheter body 1 has one single lumen structure, The esophagus interpolation [wherein the flare portion 13 in which the whole had a radius of circle is formed] necessary [in a curve outside position, at a tip of the catheter body 1, it is crushed flatly, and is blocked, and an outer diameter is smaller than an outer diameter of the catheter body 1, and] catheter 1A.

[Claim 2]The esophagus interpolation necessary catheter 1A according to claim 1 with which the flare portion 13 is formed in direction which met in the direction of tangent X in a curve outside position.

[Claim 3]The esophagus interpolation necessary catheter 1A according to claim 1 currently formed in direction in which the flare portion 23 carried out predetermined angle crookedness outside to the direction of tangent X in a curve outside position.

[Claim 4]The balloon 32 for esophageal atresia is formed in the front part of the tube shape catheter body 31 which curved a little to 1 side, Set a prescribed interval from this balloon 32 to a rear part, and the balloon 33 for epipharynx closing is formed, It is open for free passage to the catheter body 31 between these both the balloons 32 and 33 with the lumen 41, and the side hole 40 for ventilation is established in it, The stomach-tube tube 39 of a narrow diameter is put side by side to a flank of the catheter body 31 from the catheter body 31 via a septum, The esophagus interpolation necessary catheter 31A, wherein the stomach-tube tube 39 protrudes for a long time than the blockade tip part 42 of the catheter body 31 and the opening tip part 43 is formed at a tip of the stomach-tube tube 39.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The schematic diagram of the esophagus interpolation necessary catheter in which the optimal 1 embodiment of this invention is shown

[Drawing 2] The expanded sectional view which meets the A-A line of drawing 1

[Drawing 3] The bottom view of the flare portion at the tip of a catheter

[Drawing 4] The side view seen from the tip side of a catheter

[Drawing 5] The front view of an important section showing another embodiment of a flare portion

[Drawing 6] The operation explanatory view of the catheter of this invention

[Drawing 7] The schematic diagram of the esophagus interpolation necessary catheter of others of this invention

[Drawing 8] The B-B sectional view of drawing 7

[Drawing 9] C enlarged drawing of drawing 7

[Drawing 10] D enlarged drawing of drawing 7

[Description of Notations]

1A and 31A Catheter

1, 31 catheter bodies

2 and 32 Balloon for esophageal atresia

3 and 33 Balloon for epipharynx closing

5, 7, 35, and 37 Lumen for balloon expansion

6, 8, 36, 38 branch tubes

10 and 40 Side hole

11, 41, and 41A Lumen

13 and 23 Flare portion

25 Ventilation bag

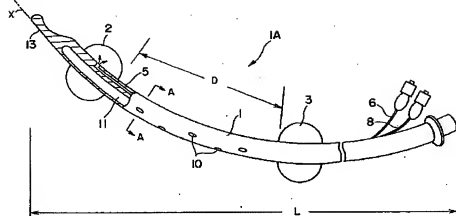
39 Stomach-tube tube

42 Blockade tip part

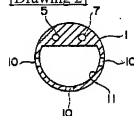
43 Opening tip part

DRAWINGS

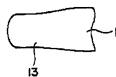
[Drawing 1]



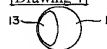
[Drawing 2]



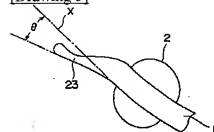
[Drawing 3]



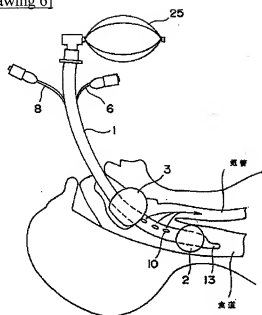
[Drawing 4]



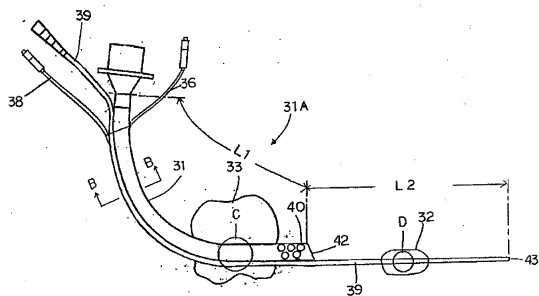
[Drawing 5]



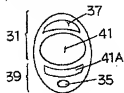
[Drawing 6]



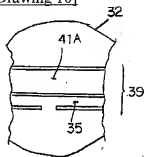
[Drawing 7]



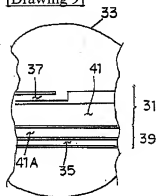
[Drawing 8]



[Drawing 10]



[Drawing 9]



[Translation done.]